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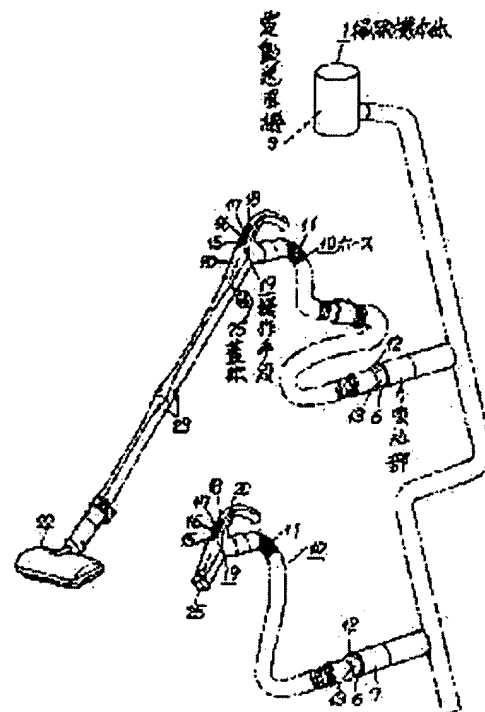
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(54) VACUUM CLEANER

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a vacuum cleaner in which cleaning can be immediately started even when plural hoses are connected to improve cleaning workability.

SOLUTION: A cleaner main body 1 to part a dust collecting chamber on the negative pressure side of an electric blower 3 is installed inside or outside a building. A communication pipe communicated with the dust collecting chamber at one end and piped to be properly branched in walls, etc., is connected to the cleaner main body 1. A suction part 7 is provided to face a room at the other end of the communication pipe branched. A connection pipe 13 at one end of a hose 19 is connected to the suction part 7, and a cover body 25 to open/close an extension pipe insert port is provided on a holding part 20 at the other end. A cover body detection switch to detect a condition there the cover body 25 is removed to open the extension pipe insert port is provided. Drive setting of the electric blower 3 can be performed by an operation means 19 to set a drive condition of the electric blower 3 provided on the holding part 20 based on detection of the cover body detection switch. Only the hose 10 to be used is thus opened to prevent deterioration of suction efficiency, and cleaning can be performed by opening operation only.



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CLAIMS

[Claim(s)]

[Claim 1] The body of a cleaner equipped with two or more intake sections which open for free passage and carry out opening to the electric-blower and negative pressure side of this electric blower outside, The hose by which an end is connected to said each intake section free [attachment and detachment], and the lid blockaded possible [closing motion of this other end] in the other end of this hose, The vacuum cleaner characterized by providing an actuation means by which a setup of the drive condition of said electric blower is attained when it is prepared in said hose and said lid carries out opening of the other end of said hose.

[Claim 2] The vacuum cleaner characterized by to provide the body of a cleaner equipped with two or more intake sections which open for free passage and carry out opening to the electric-blower and negative pressure side of this electric blower outside, the hose by which an end is connected to said each intake section free [attachment and detachment], the lid blockaded possible [closing motion of this other end] in the other end of this hose, and the control means which makes said electric blower drive when said lid carries out opening of the opening for the other end of said hose.

[Claim 3] The vacuum cleaner characterized by to provide the control means to which the input of said electric blower is changed according to the number of two or more hose by which an end is connected with the body of a cleaner equipped with two or more intake sections which open for free passage and carry out opening to the electric-blower and negative pressure side of this electric blower outside respectively free [attachment and detachment] at the aforementioned intake section, and the hose connected to the aforementioned intake section.

[Claim 4] The body of a cleaner equipped with two or more intake sections which open for free passage and carry out opening to the electric-blower and negative pressure side of this electric blower outside, The hose by which an end is connected to the aforementioned intake section respectively free [attachment and detachment], and the lid blockaded possible [closing motion of this other end] in the other end of this hose, The electrical machinery cleaner characterized by providing the control means to which the input of said electric blower is changed according to the number of the hose with which it connects with the aforementioned intake section, and said lid carries out opening of the other end.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the vacuum cleaner which equipped with two or more intake sections the body of a cleaner which holds an electric blower.

[0002]

[Description of the Prior Art] The body of a cleaner which considers as the so-called central cleaner which is the vacuum cleaner which prepared two or more intake sections which hold an electric blower conventionally, and by which a hose is connected to the negative-pressure side of this electric blower, for example, holds an electric blower is installed in indoor or the outdoors, piping opened for free passage and connected to the negative-pressure side of the electric blower of this body of a cleaner is branched the middle, opening of the other end is carried out and it is arranging in the wall surface of an indoor each part store, respectively. And the intake section by which a hose is connected to opening of the other end of this piping was prepared, and the lid which opens and closes the edge of piping is prepared in this intake section.

[0003] And the end side of a hose is connected to the intake section, and by actuation of the actuation means formed in the other end of a hose, the drive of an electric blower is operated suitably and it cleans a section indoor. Moreover, in cleaning other rooms, a hose is carried into the room which removes a hose and is cleaned from the intake section, and it connects and cleans the other end of a hose in the intake section prepared in the room cleaned again.

[0004] In addition, when the lid of the intake section of other rooms other than the room currently cleaned is open, actuation of the actuation means of the hose connected to the intake section is not recognized, but the configuration which cannot be cleaned is taken in the condition that the intake section of other rooms is open.

[0005]

[Problem(s) to be Solved by the Invention] However, in order to clean two or more rooms to coincidence, when connecting two or more hose to two or more intake sections in the conventional central cleaner, it is recognized as the intake section being open, and will be in the condition that an electric blower cannot be driven, and there is a problem which cannot clean two or more rooms to coincidence with the conventional configuration which recognizes closing motion of the intake section.

[0006] This invention was made in view of the above-mentioned trouble, and aims at offering the vacuum cleaner whose cleaning workability can start cleaning immediately by actuation of the hose cleaned also where two or more hose are connected, and improves.

[0007]

[Means for Solving the Problem] The body of a cleaner equipped with two or more intake sections which a vacuum cleaner according to claim 1 opens for free passage outside to the electric-blower and negative pressure side of this electric blower, and carry out opening, The hose by which an end is connected to said each intake section free [attachment and detachment], and the lid blockaded possible [closing motion of this other end] in the other end of this hose, When it is prepared in said hose and said lid carries out opening of the other end of said hose, an actuation means by which a setup of the drive condition of said electric blower is attained is provided.

[0008] And when opening actuation of the lid blockaded possible [closing motion of the other end of the hose by which an end is connected to two or more intake sections which open for free passage and carry

out opening to the negative pressure side of an electric blower outside free / attachment and detachment] is carried out. It writes in the condition that the actuation means formed in the hose which sets up the drive condition of an electric blower can be set up. Since a setup of the drive condition of the electric blower by the actuation means is attained by carrying out opening actuation of the lid at the condition that the hose which is in the condition to clean carried out opening. For example, the case where one of hose [them] is used and cleaned when two or more hose are connected to the intake section, Even when cleaning up using two or more connected hose, it will be in the condition that the lid of the hose which only the hose to be used carries out opening, and a suction volumetric efficiency does not fall, and is used for cleaning can be immediately cleaned only by carrying out opening actuation.

[0009] A vacuum cleaner according to claim 2 possesses the body of a cleaner equipped with two or more intake sections which open for free passage and carry out opening to the electric-blower and negative pressure side of this electric blower outside, the hose by which an end is connected to said each intake section free [attachment and detachment], the lid blockaded possible [closing motion of this other end] in the other end of this hose, and the control means which makes said electric blower drive when said lid carries out opening of the opening for the other end of said hose.

[0010] And when opening actuation of the lid blockaded possible [closing motion of the other end of the hose by which an end is connected to two or more intake sections which open for free passage and carry out opening to the negative pressure side of an electric blower outside free / attachment and detachment] is carried out, in order to make an electric blower drive in a control means, Since an electric blower drives by carrying out opening actuation of the lid in the condition that the hose which is in the condition to clean carried out opening. For example, the case where one of hose [them] is used and cleaned when two or more hose are connected to the intake section, Even when cleaning up using two or more connected hose, cleaning can be immediately started only by only the hose to be used carrying out opening and carrying out opening actuation of the lid of the hose which a suction volumetric efficiency does not fall and is used for cleaning.

[0011] A vacuum cleaner according to claim 3 possesses the control means to which the input of said electric blower is changed according to the number of two or more hose by which an end is connected with the body of a cleaner equipped with two or more intake sections which open for free passage and carry out opening to the electric-blower and negative pressure side of this electric blower outside respectively free [attachment and detachment] at the aforementioned intake section, and the hose connected to the aforementioned intake section.

[0012] And in order to change the input of an electric blower corresponding to the number to which the hose by which an end is connected to two or more intake sections which open for free passage and carry out opening to the negative pressure side of an electric blower outside by the control means free [attachment and detachment], respectively was connected, even if it cleans up to coincidence using the hose by which two or more connection was made, the suction volumetric efficiency in each hose does not change.

[0013] The body of a cleaner equipped with two or more intake sections which a vacuum cleaner according to claim 4 opens for free passage outside to the electric-blower and negative pressure side of this electric blower, and carry out opening, The hose by which an end is connected to the aforementioned intake section respectively free [attachment and detachment], the lid blockaded possible [closing motion of this other end] in the other end of this hose, and the control means to which the input of said electric blower is changed according to the number of the hose with which it connects with the aforementioned intake section, and said lid carries out opening of the other end are provided.

[0014] And in order to change the input of an electric blower corresponding to the number of the hose with which the end was connected to two or more intake sections which open for free passage and carry out opening to the negative pressure side of an electric blower outside by said control means free [attachment and detachment], respectively, and opening actuation of the lid was carried out, even if it cleans up to coincidence using the hose by which two or more connection was made, the suction volumetric efficiency in each hose does not change.

[0015]

[Embodiment of the Invention] Hereafter, one gestalt of operation of the vacuum cleaner of this invention is explained with reference to a drawing.

[0016] In drawing 1 and drawing 2, 1 is a body of a cleaner, this body 1 of a cleaner is installed in indoor or the outdoors of a building 2, and partition formation of the electric-blower room which holds an electric blower 3 in the interior and which is not illustrated is carried out. Moreover, partition formation of the settling chamber by which the negative pressure side of this electric-blower room is equipped with the vacuum cleaner bag which is not illustrated removable is carried out. Furthermore, an end is open for free passage to a settling chamber, and the communicating tube 4 piped by branching suitably Kabeuchi, on an under floor and head lining, etc. is connected to this body 1 of a cleaner. And the intake section 7 which carries out opening of the hose entry 6 to the wall which divides the rooms 5, such as a beauty shop of a building 2, to the other end which carried out branch separation and floor line of this communicating tube 4 towards the room 5 is formed, respectively, and the intake sections 7 and 7 of these plurality are open for free passage to the negative pressure side of an electric blower 3 through the communicating tube 4 and a settling chamber, respectively. Moreover, the lead wire of the pair which is not illustrated connected to the body 1 of a cleaner is arranged by the communicating tube 4, and it connects with the terminal of the pair of the female connector which was arranged in the intake section 7 by these lead wire and which is not illustrated. Furthermore, the shutter which opens and closes the hose entry 6 and which is not illustrated is formed in the intake section 7.

[0017] On the other hand, 10 is a hose and this hose 10 has the communication trunk 13 with which a clamp 12 is arranged by the end of the hose object 11 of the shape of an elongated tube with flexibility, and it is equipped removable and pivotable in the hose entry 6 of the intake section 7. And the male connector equipped with the terminal strip which is connected to the female connector of the intake section 7, and is electrically connected to the terminal of the intake section 7 and which is not illustrated is prepared in this communication trunk 13. Moreover, the hose 10 has the grasping section 20 in which the actuation means 19 equipped with the various carbon buttons 15-18 which set the drive condition of an electric blower 3 as the other end of the hose object 11 was arranged. And the actuation means 19 of the grasping section 20 is connected to the terminal strip of a male connector through the electric wire which was prepared in the hose object 11 and which is not illustrated. Moreover, opening formation of the prolongator entry where the prolongator 23 which connects to the grasping section 20 of a hose 10 the inlet port object 22 which carried out opening of the inlet port which absorbs the dust on a floor line, and which is not illustrated to the inferior surface of tongue removable is fitted in removable and which is not illustrated is carried out, and a hose 10 is open for free passage to the inlet port of the inlet port object 22 through prolongator 23.

[0018] And as shown in drawing 3, the lid 25 which can attach a prolongator entry free [attachment and detachment] possible [closing motion] is formed in the grasping section 20. Moreover, when a lid 25 blockades a prolongator entry and is attached near the prolongator entry, Kaisei is carried out and the lid pilot switch 26 as a lid detection means of normally closing which is in a closing condition is always arranged. And this lid pilot switch 26 is connected to the electric wire of the hose object 11 at the actuation means 19 and the serial.

[0019] Next, the circuitry of the gestalt of the above-mentioned implementation is explained with reference to drawing 1.

[0020] The electric blower 3 of the body 1 of a cleaner is connected to the commercial alternating current power source E through Triac Tr and the power-source line for power control which were carried on the circuit board arranged in the body 1 of a cleaner. And the control means 30 carried in the circuit board is connected to the gate of Triac Tr. Moreover, an electrical-potential-difference reading means 31 to read an electrical potential difference is formed in a control means 30, and a capacitor C1 and resistance R1 are connected to this electrical-potential-difference reading means 31 at juxtaposition. And an actuation means 19 of a hose 10 by which the electrical-potential-difference reading means 31 is connected to the intake section 7 through the lead wire of the communicating tube 24, and the series circuit of the lid pilot switch 26 are connected.

[0021] Moreover, the actuation means 19 is the normally open switch SW1 closed by actuation of the various carbon buttons 15-18, respectively, SW2, SW3, and SW4. These switch SW1 -SW4 Corresponding to carbon buttons 15-18, it connects with two or more juxtaposition, and the series circuit with the resistance R2, R3, R4, and R5 connected to the serial, respectively is constituted. In addition, each resistance R2-R5 serves as different resistance.

[0022] And the electrical-potential-difference reading means 31 is switch SW1 -SW4 which each carbon

buttons 15-18 of the actuation means 19 are operated, and corresponds where the lid pilot switch 26 is closed. If it closes This switch SW1 -SW4 Through the resistance R2-R5 connected to the serial, read a predetermined electrical potential difference, for example, an electrical potential difference as shown in drawing 5 , and it corresponds to the read electrical potential difference. A control means 30 carries out phase control of the triac Tr, and changes the drive control of the electric blower 3 into the drive condition used as a predetermined input.

[0023] Next, actuation of the gestalt of the above-mentioned implementation is explained with reference to a drawing.

[0024] First, on the occasion of cleaning, the shutter of the intake section 7 prepared in the wall is operated, opening of the hose entry 6 is carried out, and the communication trunk 13 of a hose 10 is connected to this hose entry 6.

[0025] And a lid 25 is removed from the grasping section 20 of the hose 10 by which the communication trunk 13 was beforehand connected to the intake section 7, opening of the prolongator entry is carried out, and the prolongator 23 which connected the inlet port object 22 is connected to the prolongator entry of the grasping section 20. By removing this lid 25 and carrying out opening of the prolongator entry, the lid pilot switch 26 closes and a control means 30 and the actuation means 19 of a hose 10 will be in the condition of having connected electrically. And switch SW1 -SW4 corresponding to the carbon buttons 15-18 operated when the various carbon buttons 15-18 of the actuation means 19 were operated It closes and is this switch SW1 -SW4. A predetermined electrical potential difference flows by the resistance R2-R5 connected to the serial, and it reads with the electrical-potential-difference reading means 31 of a control means 30.

[0026] Namely, switch SW1 corresponding to this carbon button 15 by actuation of the carbon button 15 of an actuation means 19 of a purport by which that detected electrical potential difference V stops an electric blower 3 when the electrical-potential-difference reading means 31 detects an electrical potential difference V (step 1) and detects an electrical potential difference V, as shown in the flow chart of drawing 6 It judges whether it is beyond the electrical-potential-difference value Va by closing (step 2). And when it is judged that it is not beyond the electrical-potential-difference value Va, the detected electrical potential difference V is judged to be a noise, and detects an electrical potential difference V again. Moreover, switch SW2 corresponding to this carbon button 16 by actuation of the carbon button 16 of the actuation means 19 of the purport to which automatic control of the drive of an electric blower 3 is carried out when it is judged that the electrical potential difference V detected at step 2 is beyond the electrical-potential-difference value Va It judges whether it is beyond the electrical-potential-difference value Vb by closing (step 3). And when it is judged that it is not beyond the electrical-potential-difference value Vb, the detected electrical potential difference V judges that the carbon button 15 of a purport made to suspend the electric blower 3 of under Vb beyond the electrical-potential-difference value Va was operated, and stops the drive of an electric blower 3 (step 4).

[0027] Moreover, switch SW3 corresponding to this carbon button 17 by actuation of the carbon button 17 of the actuation means 19 of the purport which weak-controls the drive of an electric blower 3 when it is judged that the electrical potential difference V detected at step 3 is beyond the electrical-potential-difference value Vb It judges whether it is beyond the electrical-potential-difference value Vc by closing (step 5). And when it is judged that it is not beyond the electrical-potential-difference value Vc, the detected electrical potential difference V judges the electric blower 3 of under Vc that the carbon button 16 of the purport which carries out automatic control was operated beyond the electrical-potential-difference value Vb, and controls the drive of an electric blower 3 automatically (step 6).

[0028] Moreover, switch SW4 corresponding to this carbon button 18 by actuation of the carbon button 18 of the actuation means 19 of the purport which strong-controls the drive of an electric blower 3 when it is judged that the electrical potential difference V detected at step 5 is beyond the electrical-potential-difference value Vc It judges whether it is beyond the electrical-potential-difference value Vd by closing (step 7). And when it is judged that it is not beyond the electrical-potential-difference value Vd, the detected electrical potential difference V judges that the carbon button 17 of the purport which makes the electric blower 3 of under Vd weak-control beyond the electrical-potential-difference value Vc was operated, and weak-controls the drive of an electric blower 3 (step 8).

[0029] Moreover, when it is judged that the electrical potential difference V detected at step 5 is beyond the electrical-potential-difference value Vd, it judges that the carbon button 18 of the actuation means 19 of the

purport which strong-controls the drive of an electric blower 3 was operated, and the drive of an electric blower 3 is strong-controlled (step 9).

[0030] Thus, corresponding to the read electrical potential difference V , a control means 30 carries out phase control of the triac Tr , in the drive condition of a predetermined input, drive control is carried out and an electric blower 3 is cleaned.

[0031] By this cleaning, the dust absorbed with air from the inlet port of the inlet port object 22 is led to the settling chamber of the body 1 of a cleaner through prolongator 23, a hose 10, a communication trunk 13, and the communicating tube 4, and the air which caught and filtered dust with the vacuum cleaner bag in a settling chamber presupposes the style of exhaust air, and is exhausted outside.

[0032] And after cleaning removes the inlet port object 22 and prolongator 23, and blockades the prolongator entry of the grasping section 20 with a lid 25. Even if the lid pilot switch 26 opens wide and operates the carbon buttons 15-18 of the actuation means 19 accidentally in this condition, an electric blower 3 is not driven.

[0033] In addition, two or more hose 10 are connected to the intake section 7, and adjustable [of the input of an electric blower 3] is suitably carried out by setting actuation of the actuation means 19 and 19 of each hose 10 and 10 in the state of cleaning in which the lid 25 was removed and the prolongator entry of two or more hose 10 carried out opening.

[0034] As mentioned above, when opening actuation of the lid 25 blockaded possible [closing motion of the prolongator entry of the other end of the hose 10 by which an end is connected to two or more intake sections 7 and 7 which are open for free passage to the negative pressure side of an electric blower 3 with the gestalt of the above-mentioned implementation] is carried out Since it will be in the condition that an actuation means 19 of a hose 10 to set up the drive condition of an electric blower 3 can be set up, Since a setup of the drive condition of the electric blower 3 by the actuation means 19 is attained by carrying out opening actuation of the lid 25 at the condition that the hose 10 which is in the condition to clean carried out opening For example, the case where one of the hose [them] 10 is used and cleaned when two or more hose 10 are connected to the intake section 7, Even when cleaning up using two or more connected hose 10 and 10, it will be in the condition that the prolongator entry of the hose 10 which only the hose 10 to be used carries out opening, and a suction volumetric efficiency does not fall, and is used for cleaning can be immediately cleaned only by carrying out opening actuation, and cleaning workability can be improved.

[0035] In addition, although after it carried out Kaisei, and the lid 25 was removed and the prolongator entry had carried out opening prepared and explained the lid pilot switch 26 which enables setting actuation with the actuation means 19 when this prolongator entry was blockaded and it was attached near the prolongator entry in the gestalt of the above-mentioned implementation As for detection of the switching condition of the prolongator entry by attachment and detachment of a lid 25, any configuration -- it is based on a switch and also a magnetometric sensor, a photosensor, etc. detect -- can be performed.

[0036] Next, the gestalt of other operations of this invention is explained with reference to drawing 7 thru/or drawing 10.

[0037] The gestalt of operation shown in this drawing 7 thru/or drawing 10 does not establish the actuation means 19 of the gestalt of operation shown in above-mentioned drawing 1 thru/or drawing 6, but carries out the direct drive of the electric blower 3 in opening of the prolongator entry by removal of a lid 25.

[0038] That is, in drawing 7, while the actuation means 19 of the gestalt of operation shown in drawing 1 thru/or drawing 6 is not established but the lid 25 blockaded possible [closing motion of a prolongator entry] is formed, the lid pilot switch 26 which detects lock out of the prolongator entry by installation of this lid 25 is formed in the grasping section 20 of a hose 10.

[0039] And as shown in the circuit diagram of drawing 8 at the lid pilot switch 26, the lid pilot switch 26 is connected to the electrical-potential-difference reading means 31 of a control means 30 through the electric wire of a hose 10, and the lead wire of the communicating tube 4 by connecting with the resistance $R5$ arranged in the grasping section 20, and connecting a hose 10 to the intake section 7. In addition, the current-limiting resistor $R6$ is formed in the lead wire of the communicating tube 4.

[0040] Here, since the lid pilot switches 26 and 26 of two or more hose 10 and 10 connected to the intake section 7 will be in a juxtaposition condition to the electrical-potential-difference reading means 31, respectively, the electrical-potential-difference values V read according to the closing condition of the lid pilot switch 26 as the electrical-potential-difference reading means 31 is shown in drawing 9 differ.

[0041] Next, actuation of the gestalt of operation shown in above-mentioned drawing 7 thru/or drawing 10 is explained with reference to a drawing.

[0042] First, on the occasion of cleaning, the shutter of the intake section 7 prepared in the wall or the floor line is operated like the gestalt of operation shown in drawing 1 thru/or drawing 6, opening of the hose entry 6 is carried out, and the communication trunk 13 of a hose 10 is connected to this hose entry 6.

[0043] And a lid 25 is removed from the grasping section 20 of the condition 10 to clean, i.e., the hose by which the communication trunk 13 was beforehand connected to the intake section 7, opening of the prolongator entry is carried out, and the prolongator 23 which connected the inlet port object 22 is connected to the prolongator entry of the grasping section 20. By removing this lid 25 and carrying out opening of the prolongator entry, the lid pilot switch 26 closes and an electric blower 3 drives in the state of a predetermined drive.

[0044] That is, if an electrical potential difference V is detected when the electrical-potential-difference reading means 31 detects an electrical potential difference V (step 11), removes a lid 25, opening of the prolongator entry is carried out and the lid pilot switch 26 closes as shown in the flow chart of drawing 10, the detected electrical potential difference V will judge whether it is more than electrical-potential-difference value V1 at the time of the lid 25 of one hose 10 being removed (step 12). And when it is judged that it is more than electrical-potential-difference value V1, it is judged as that by which the lid 25 of one hose 10 was removed, and opening of the prolongator entry was carried out, namely, only one hose 10 is used for cleaning, and an electric blower 3 is made to drive in the state of the drive of an input P1 (step 13).

[0045] Moreover, when it is judged that the electrical potential difference V detected at step 12 is not more than electrical-potential-difference value V1, it judges whether it is more than electrical-potential-difference value V2 at the time of the lids 25 and 25 of two hose 10 and 10 being removed (step 14). And when it is judged that it is more than electrical-potential-difference value V2, the lids 25 and 25 of two hose 10 and 10 were removed, and opening of the prolongator entry was carried out, namely, it is judged as what is cleaned with two hose 10 and 10, respectively, and an electric blower 3 is made to drive in the state of the drive of the larger input P2 than an input P1 (step 15).

[0046] Furthermore, when it is judged that the electrical potential difference V detected at step 14 is not more than electrical-potential-difference value V2, it judges whether it is more than electrical-potential-difference value V3 at the time of the lids 25 and 25 of three hose 10 and 10 being removed (step 16). And when it is judged that it is more than electrical-potential-difference value V3, the lids 25 and 25 of three hose 10 were removed, and opening of the prolongator entry was carried out, namely, it is judged as what is cleaned with three hose 10 and 10, and an electric blower 3 is made to drive in the state of the drive of the larger input P3 than an input P2 (step 17). Moreover, when it is judged at step 16 that an electrical potential difference V is not more than electrical-potential-difference value V3, the electrical-potential-difference reading means 31 judges that the noise was detected, and stops the drive of an electric blower 3 (step 18).

[0047] thus, with the gestalt of operation shown in above-mentioned drawing 7 thru/or drawing 10 By carrying out opening actuation in the condition that the hose 10 which is in the condition of cleaning the lid 25 blockaded possible [closing motion of the prolongator entry of the other end of the hose 10 by which an end is connected to two or more intake sections 7 which are open for free passage to the negative pressure side of an electric blower 3] carried out opening The case where one of the hose [them] 10 is used and cleaned in order to make an electric blower 3 drive, for example, when two or more hose 10 and 10 are connected to the intake section 7, Even when cleaning up to coincidence using two or more connected hose 10 and 10, respectively, cleaning can be immediately started only by only the hose 10 to be used carrying out opening and carrying out opening actuation of the lid 25 of the hose 10 which a suction volumetric efficiency does not fall and is used for cleaning.

[0048] Moreover, since the input of an electric blower was increased according to adjustable, i.e., the number of hose 10 which carries out opening, increase according to the number of hose 10 when opening of two or more hose 10 and 10 was carried out by removal of a lid 25, even when cleaning up to coincidence using two or more hose 10 and 10, the suction volumetric efficiency in each hose 10 does not fall.

[0049] in addition, as a lid pilot switch 26 which detects the removable lid 25 prepared in the same structure as the gestalt of operation shown in drawing 1 thru/or drawing 6 in the gestalt of operation shown

in above-mentioned drawing 7 thru/or drawing 10 For example, as shown in drawing 11 thru/or drawing 13, support to revolve the shaft 40 prepared in one near the periphery of a lid 25 pivotable in the grasping section 20, and closing motion of the prolongator entry 41 of it is enabled by rotation of a lid 25. The cam 42 which bulges in one is formed in the direction of a path at a shaft 40, and when this cam 42 attaches and detaches, the switch of the lid pilot switch 26 is opened and closed. In addition, this cam 42 is formed so that the switch of the lid pilot switch 26 may carry out Kaisei only in the condition that the switch of the lid pilot switch 26 will close if a lid 25 rotates the prolongator entry 41 in the condition of carrying out opening, and a lid 25 closes the prolongator entry 41 completely.

[0050] Moreover, the engaging-and-releasing cam 46 with the engagement crevice 45 which engages with the lobe 44 prepared in the grasping section 20 possible [engaging and releasing], and gives a feeling of a click to a shaft 40 is formed in one, and when the engaging-and-releasing cam 45 engages with a lobe 44, while the prolongator entry 41 will be in the condition that opening was carried out completely, the opening condition of the prolongator entry 41 is maintained so that a lid 25 may not move during cleaning. In addition, the tongue 47 made to rotate a lid 25 protrudes on the lid 25.

[0051] According to the configuration which opens and closes the prolongator entry 41 by rotating the lid 25 shown in this drawing 11 thru/or drawing 13, even if an electric blower 3 drives by rotation of a lid 25 and negative pressure arises, opening actuation of the prolongator entry 41 by rotation actuation of a lid 25 can be easily performed in little resistance.

[0052] Moreover, it can prevent that a lid 25 does not become obstructive but cleaning workability becomes complicated in the case of cleaning by locating the shaft 40 which carries out rotation support of the lid 25 down the prolongator entry 41, and arranging it.

[0053] Furthermore, since the prolongator entries 41 and 41 of the hose 10 and 10 which are not cleaned are completely closed when two or more hose 10 and 10 are connected where the prolongator entry 41 is closed completely in order for the switch of the lid pilot switch 26 to carry out Kaisei for example, decline in the suction volumetric efficiency by leak can be prevented certainly.

[0054] And although adjustable [of the input of an electric blower 3] was carried out and being explained corresponding to the opening condition of two or more hose 10 and 10, when a lid 25 is only removed and opening of the prolongator entry 41 is carried out, it is good to even make an electric blower 3 drive in the state of a predetermined drive.

[0055] Moreover, the actuation means 19 is formed in the grasping section 20, and when a lid 25 is removed like the gestalt of operation shown in drawing 1 thru/or drawing 6 and opening of the prolongator entry 41 is carried out, while enabling a setup of the drive condition of the electric blower 3 by the actuation means 19, even if it is made to carry out adjustable [of the input of an electric blower 3] respectively corresponding to the opening condition of two or more hose 10 and 10, and the established state by the actuation means 19, it can do.

[0056] Moreover, in the gestalt of operation shown in the gestalt and drawing 11 thru/or drawing 13 of the operation shown in the gestalt, drawing 7, or drawing 10 of the operation shown in above-mentioned drawing 1 thru/or drawing 6, although explained using the central cleaner with which the body 1 of a cleaner is installed in indoor or the outdoors, the same effectiveness is acquired with any vacuum cleaner with which the canister mold which prepared the transit ring can connect two or more hose 10 and 10 to the body 1 of a cleaner.

[0057] Furthermore, as a lid detection means to detect the switching condition of the lid 25 which opens and closes the prolongator entry 41, and the prolongator entry 41 by this lid 25, it is made to the gestalt of each above-mentioned implementation not only with the switch of a publication but with any structure.

[0058] Moreover, although the lid 25 of the hose 10 by which two or more connection was made changed the input of an electric blower 3 corresponding to the number by which opening actuation was carried out and explained, you may make it change an input corresponding to the number to which the hose 10 which does not have a lid 25 is connected.

[0059]

[Effect of the Invention] When opening actuation of the lid prepared in the hose connected to two or more intake sections which are open for free passage to the negative pressure side of an electric blower is carried out according to the vacuum cleaner according to claim 1 It writes in the condition that the actuation means formed in the hose which sets up the drive condition of an electric blower can be set up. Since a setup of

the drive condition of the electric blower by the actuation means is attained by carrying out opening actuation of the lid at the condition that the hose which is in the condition to clean carried out opening For example, the case where one of hose [them] is used and cleaned when two or more hose are connected to the intake section, Even when cleaning up using two or more connected hose, it changes into the condition that the lid of the hose which only the hose to be used carries out opening, and a suction volumetric efficiency does not fall, and is used for cleaning can be immediately cleaned only by carrying out opening actuation, and cleaning workability can be improved.

[0060] When opening actuation of the lid prepared in the hose connected to two or more intake sections which are open for free passage to the negative pressure side of an electric blower is carried out according to the vacuum cleaner according to claim 2, in order to make an electric blower drive in a control means, Since an electric blower drives by carrying out opening actuation of the lid in the condition that the hose which is in the condition to clean carried out opening For example, the case where one of hose [them] is used and cleaned when two or more hose are connected to the intake section, Even when cleaning up using two or more connected hose, cleaning can be immediately started only by only the hose to be used carrying out opening and carrying out opening actuation of the lid of the hose which a suction volumetric efficiency does not fall and is used for cleaning, and cleaning workability can be improved.

[0061] In order to carry out adjustable [of the input of an electric blower] by the control means corresponding to the number to which the hose connected to two or more intake sections which are open for free passage to the negative pressure side of an electric blower, respectively was connected according to the vacuum cleaner according to claim 3, For example, change of the suction volumetric efficiency of each connected hose which is used for cleaning -- decline in the suction volumetric efficiency in each hose can be prevented even if it cleans up to coincidence using the hose by which two or more connection was made, and decline in cleaning effectiveness can be prevented -- can be prevented.

[0062] In order to carry out adjustable [of the input of an electric blower] by said control means corresponding to the number by the lid of the hose connected to two or more intake sections which are open for free passage to the negative pressure side of an electric blower, respectively which carries out opening according to the vacuum cleaner according to claim 4, For example, change of the suction volumetric efficiency of each hose used among the hose connected -- even if it cleans up to coincidence using the hose by which two or more connection was made, decline in a suction volumetric efficiency can be prevented with each hose, and decline in cleaning effectiveness can be prevented -- can be prevented.

[Translation done.]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the explanatory view showing one gestalt of operation of the vacuum cleaner of this invention.

[Drawing 2] It is the perspective view showing the condition of having applied to the beauty shop same as the above.

[Drawing 3] It is the perspective view showing the condition of having been blockaded with the lid of the grasping section same as the above.

[Drawing 4] It is the block diagram showing circuitry same as the above.

[Drawing 5] It is the graph which shows the electrical potential difference V detected with a lid detection means same as the above.

[Drawing 6] It is a flow chart explaining actuation same as the above.

[Drawing 7] It is the perspective view showing the grasping section of the gestalt of other operations of this invention.

[Drawing 8] It is the explanatory view showing circuitry same as the above.

[Drawing 9] It is the graph which shows the electrical potential difference V detected with a lid detection means same as the above.

[Drawing 10] It is a flow chart explaining actuation same as the above.

[Drawing 11] It is a perspective view in the condition of having been blockaded with the lid of the grasping section of this invention in which the gestalt of other operations is shown further.

[Drawing 12] It is the perspective view showing the condition of having been wide opened with the lid of the grasping section same as the above.

[Drawing 13] It is the perspective view showing the configuration which detects the switching condition of a lid same as the above.

[Description of Notations]

1 Body of Cleaner

3 Electric Blower

7 Intake Section

10 Hose

19 Actuation Means

25 Lid

30 Control Means

[Translation done.]

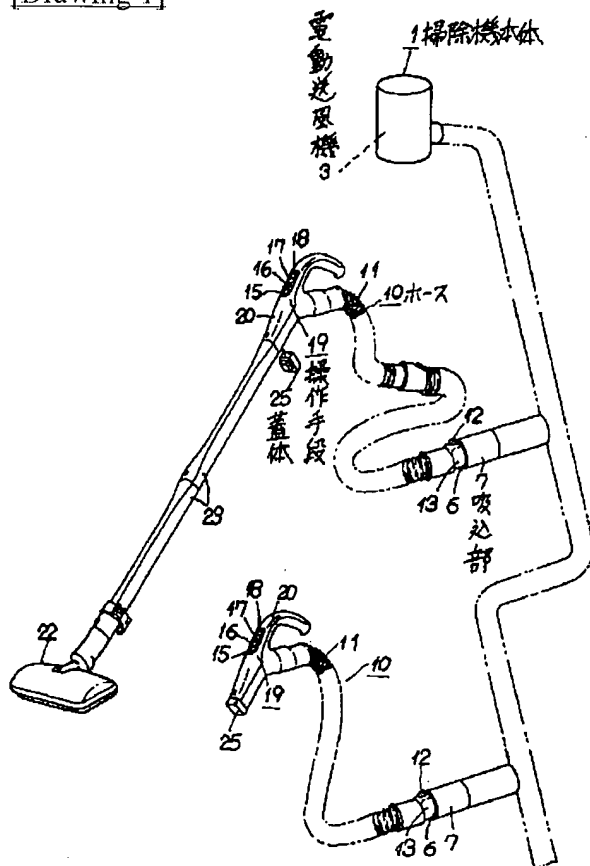
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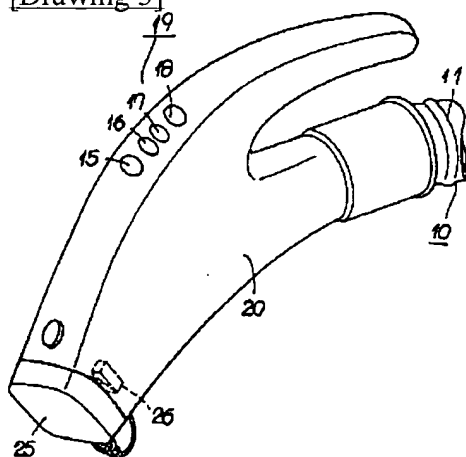
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DRAWINGS

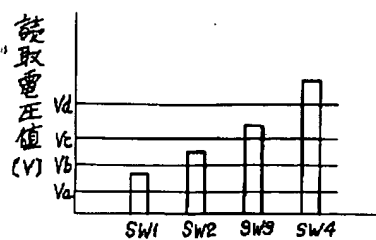
[Drawing 1]



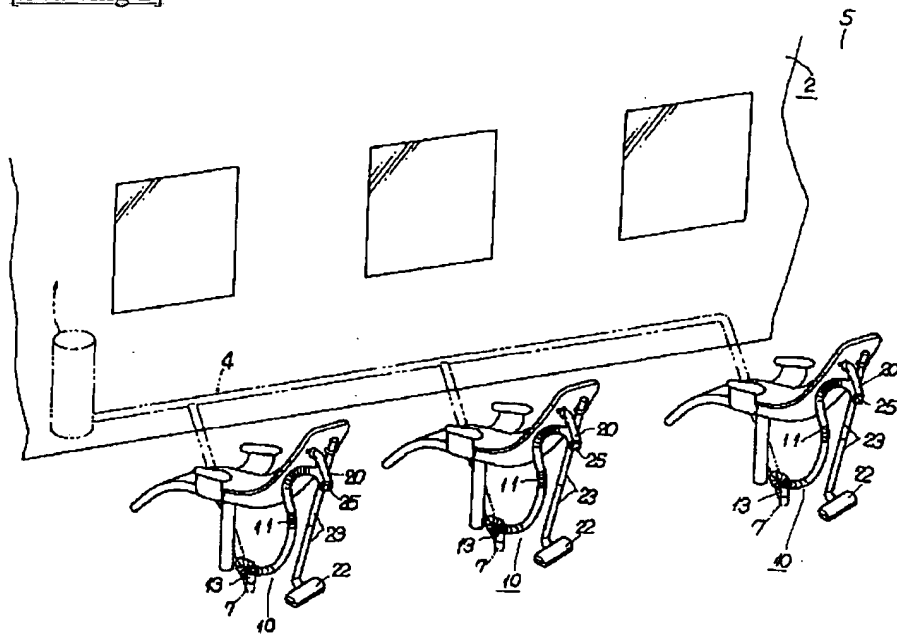
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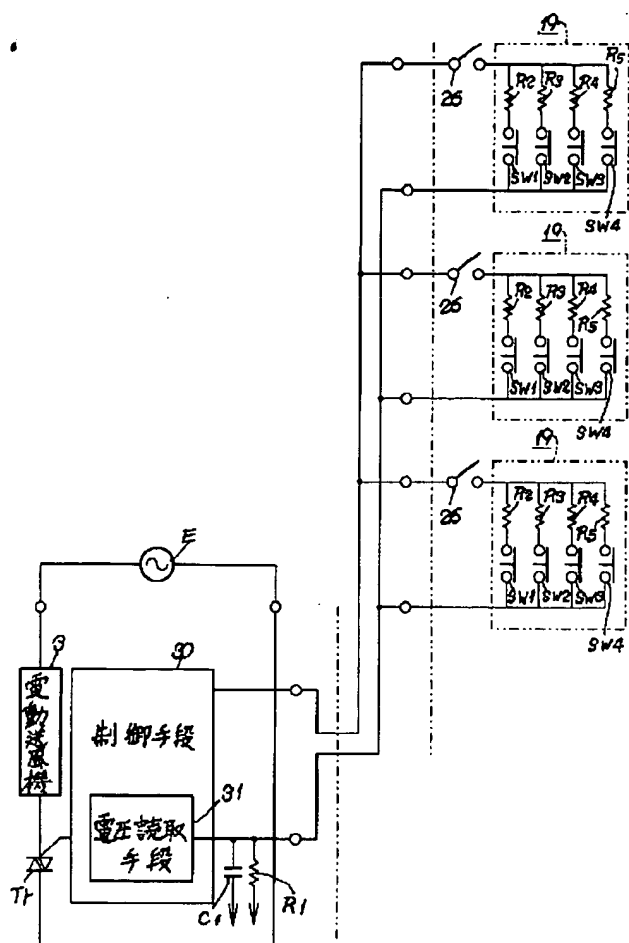
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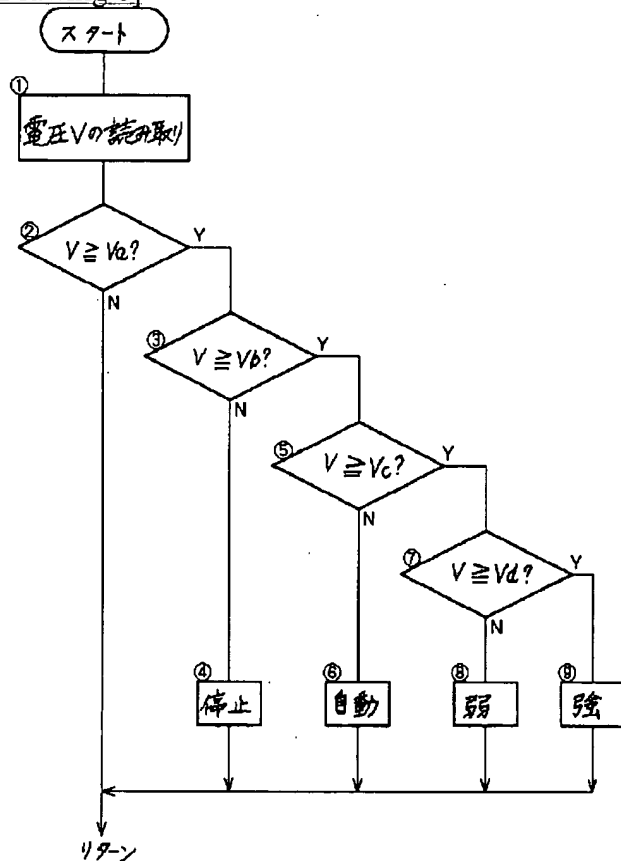
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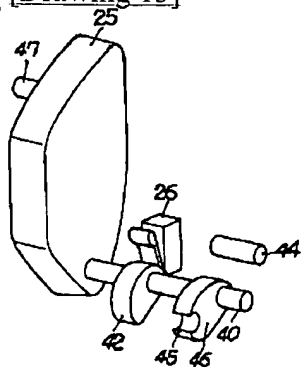
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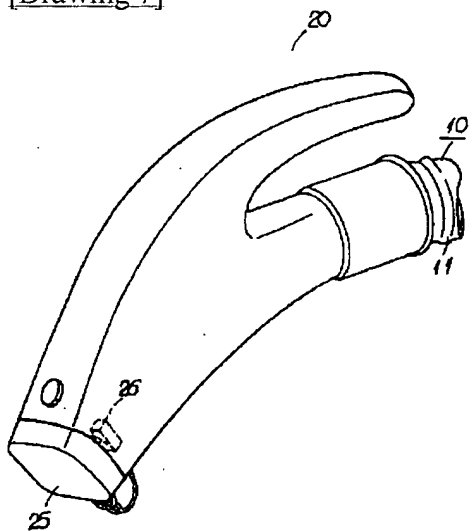
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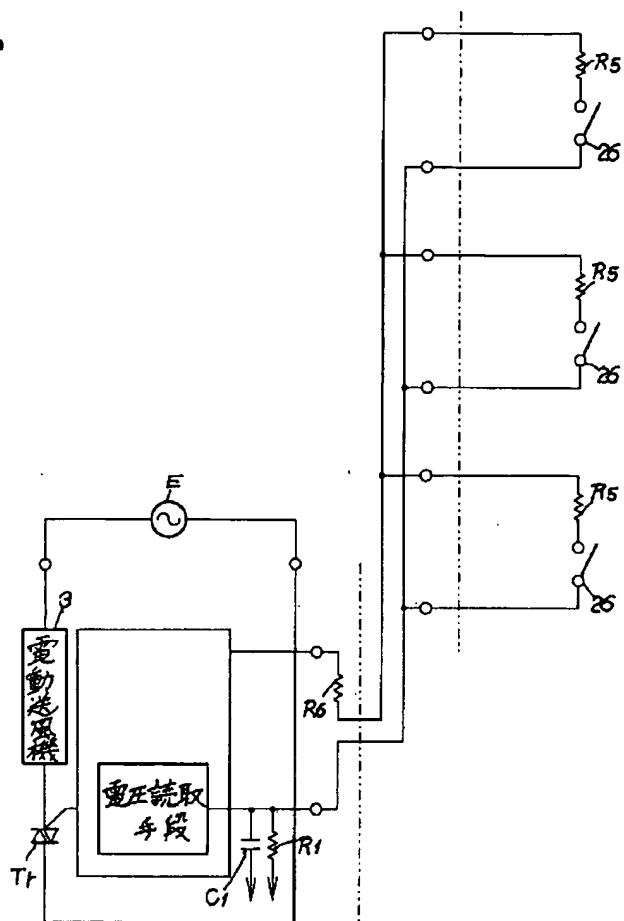
[Drawing 13]



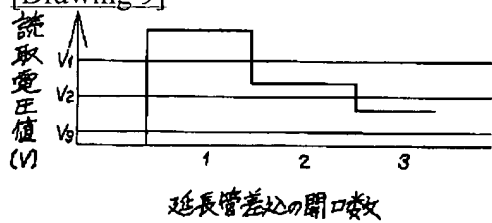
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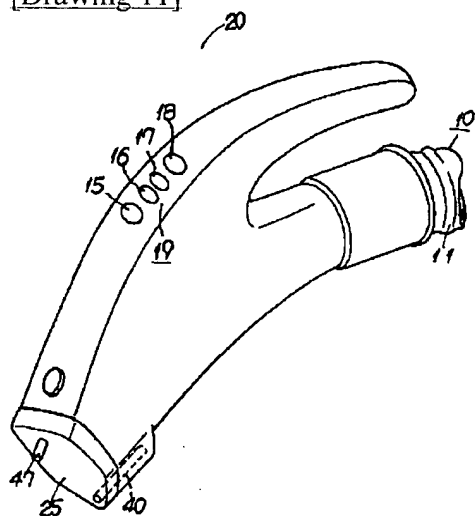
[Drawing 8]



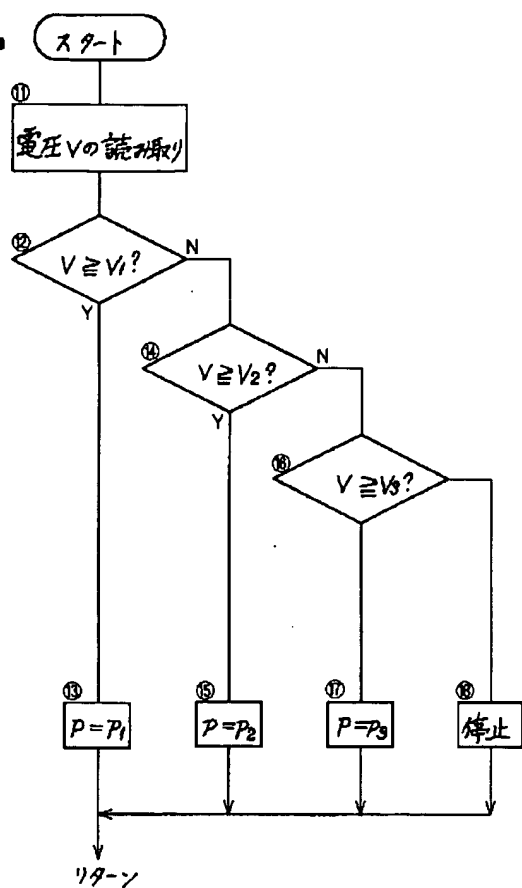
[Drawing 9]



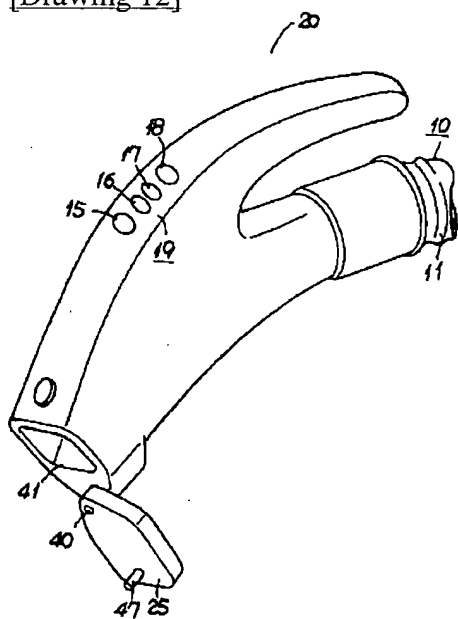
[Drawing 11]



[Drawing 10]



[Drawing 12]



[Translation done.]